03060101-030

(Keowee River/Lake Keowee)

General Description

Watershed 03060101-030 is located in Oconee and Pickens Counties and consists primarily of the ***Keowee River*** and its tributaries from the Jocassee Dam to the Keowee Dam forming ***Lake Keowee***. The watershed occupies 78,800 acres of the Blue Ridge and Piedmont regions of South Carolina. The predominant soil types consist of an association of the Pacolet-Ashe-Hayesville series. The erodibility of the soil (K) averages 0.23, and the slope of the terrain averages 28%, with a range of 2-80%. Land use/land cover in the watershed includes: 87.3% forested land, 8.7% water, 3.1% agricultural land, 0.4% forested wetland, 0.3% urban land, and 0.2% barren land.

The Keowee River flows out of the Jocassee Dam and into Lake Keowee. Cane Creek (Bully Branch, Dammo Branch), McKinneys Creek, and Eastatoe Creek all form arms of the lake. Eastatoe Creek flows over the Stateline and accepts drainage from Wild Hog Creek, Abner Creek (Dogwood Creek), Rocky Bottom Creek, Side-of-Mountain Creek, Laurel Branch, Laurel Creek, Reedy Cove Creek, Smith Creek, Jewell Branch, Mill Creek (Kinney Branch, Chucky Branch), Barn Branch, Peach Orchard Branch, Little Eastatoe Creek, and Poe Creek before flowing into the Keowee River. Little Eastatoe Creek accepts drainage from Winnie Branch, Mine Times Creek, and Clearwater Branch before joining Eastatoe Creek. Downstream from the Eastatoe Creek confluence, the river accepts drainage from Boones Creek, Cedar Creek (Lake Diana, Little Cedar Creek), and Fall Creek. Crow Creek (Lake Carlton, Katoma Branch, East Fork, Ellenburg Branch, Taylor Branch, Little Crow Creek) enters the lake next, followed by Betty Branch, Caney Branch, Mile Creek, Whetner Branch, and Kelly Creek.

There are a total of 133.0 stream miles and 7,887.0 acres of lake waters in this watershed. Lake Keowee and its tributaries are classified FW with the following exceptions. Cane Creek and its tributaries from its origin to Lake Keowee are classified TN. Eastatoe Creek and tributaries are classified ORW from the Stateline to Laurel Creek, and TPGT from Laurel Creek to Lake Keowee. Reedy Cove Creek is classified FW.

Surface Water Quality

Station #	Type	Class	Description
SV-741	BIO	ORW	EASTATOE CREEK AT S-39-237
SV-676	BIO	ORW	ROCKY BOTTOM CREEK AT US 178
SV-230	P/BIO	TPGT	EASTATOE CREEK AT S-39-143
SV-341	W/BIO	TPGT	LITTLE EASTATOE CREEK AT S-39-49
SV-338	P	FW	LAKE KEOWEE ABOVE SC 130 AND DAM

Eastatoe Creek – There are two monitoring sites along Eastatoe Creek. At the upstream site ***(SV-741),*** aquatic life uses are fully supported based on macroinvertebrate community data. At the downstream site ***(SV-230),*** aquatic life uses are fully supported based on macroinvertebrate community, physical, and chemical data. There is a significant increasing trend in pH. A significant increasing trend in dissolved oxygen and significant decreasing trends in five-day biochemical oxygen demand, turbidity, total

nitrogen, and total suspended solids concentrations suggest improving conditions for these parameters. Recreational uses are fully supported.

Rocky Bottom Creek (SV-676) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Little Eastatoe Creek (SV-341) - Aquatic life uses are fully supported based on macroinvertebrate community, physical, and chemical data. Recreational uses are partially supported due to fecal coliform bacteria excursions. A total maximum daily load (TMDL) has been developed for SV-341 to address this impairment (see Watershed Protection and Restoration Strategies below).

Lake Keowee (SV-338) - Aquatic life uses are fully supported. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Natural Swimming Areas

FACILITY NAME / ***RECEIVING STREAM***	***PERMIT #*** / ***STATUS***
MCCALL ROYAL AMBASSADOR CAMP	39-N03
REEDY COVE CREEK	ACTIVE

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** / ***TYPE*** / ***COMMENT***
REEDY COVE CREEK	SC0026557
MCCALL ROYAL AMBASSADOR CAMP	MINOR DOMESTIC
PIPE #: 001 FLOW: 0.012	
LAKE KEOWEE	SC0000515
DUKE POWER/OCONEE NUCLEAR	MAJOR INDUSTRIAL
PIPE #:001 FLOW: 2,442.9	

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / ***FACILITY TYPE***	***PERMIT #*** / ***STATUS***
McMILLAN-CARTER INC.	392900-1301
C&D	INACTIVE

NIMMONS BRIDGE ROAD	372690-1701
C&D, YT	ACTIVE

Water Quantity

WATER USER / *STREAM*	*TOTAL PUMP. CAPACITY (MGD)* / *RATED PUMP. CAPACITY (MGD)*
GREENVILLE WATER SYSTEM	45.0
LAKE KEOWEE	30.0

Plant expansion is underway to increase capacity.

Growth Potential

There is a moderate to high potential for growth in this watershed, which contains Lake Keowee. Residential growth in and adjacent to the mountain region is predicted at relatively high levels, despite the low population base.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

Levels of fecal coliform bacteria can be elevated in water bodies as the result of both point and nonpoint sources of pollution. Little Eastatoe Creek (class freshwater, FW) is currently in violation of the fecal coliform bacteria water quality standard, as more than 10% of the samples collected at SV-341 during 1992-1996 exceed the 400 colonies/100ml standard. Agriculture and forest are two major land uses in the Little Eastatoe Creek watershed. Both can be sources of fecal coliform bacteria. Targeting agricultural land for reduction of bacteria is the most effective strategy for this watershed. The geometric mean for this site is 213.9 colonies/100ml.

Using a target level of bacteria of 175 colonies/100ml, the target loading for Little Eastatoe Creek is 9.40 x 1010 colonies/day. This translates to an agricultural reduction of 21% or a final agricultural loading of 7.82 x 1010 colonies/day. Forested lands are not targeted for reduction, as there are currently no acceptable means of reducing fecal coliform sources within that land use. There are several tools available for implementing this TMDL, including an ongoing §319 funded project, as well as other NPS pollution outreach materials. SCDHEC will continue to monitor water quality in Little Eastatoe Creek to evaluate the effectiveness of these measures.

Special Projects

Formation of the Oconee-Pickens Clean Water Action (OPCWA) by the Friends Of Lake Keowee Society (FOLKS) – Midpoint Project Report

A §319 grant from EPA was awarded to Friends Of Lake Keowee Society (FOLKS) in July 1999. The grant enabled the formation of Oconee-Pickens Clean Water Action (OPCWA), a partnership of conservation interests that includes Clemson University, S.C. Forestry Commission, USDA/NRCS, county governments, Duke Energy, and citizens of Oconee and Pickens Counties. FOLKS serves as the lead organization, providing project management, volunteer support, and partial funding.

The objective of OPCWA is to improve impaired waterways in the Lake Keowee watershed, by reducing nonpoint sources of fecal coliform and metals. Education and public awareness regarding nonpoint sources were also targeted. At project start, the designated impairments included fecal coliform in Cane Creek, Little Cane Creek, and Little Eastatoe Creek; and metals in Big Eastatoe Creek and parts of Lake Keowee.

The strategy for improvement was to first locate and prioritize pollution "hot spots" through rounds of water testing and land use survey; and then to bring best management practices (BMPs) to remediate the associated pollution sources. This is being done through a combination of educational outreach and cost sharing for BMP implementation. Pollution sources identified and targeted in the impaired areas included mine and marine wastes, unbuffered timber and livestock operations, waterside landscapes, and waterside communities on septic systems.